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# Review of Triple Negative Breast Cancer Cases Treated at Lehigh Valley Health Network in 2013-14

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## INTRODUCTION

- Female breast cancer is estimated to be the most common type of cancer diagnosed in 2015, representing 14% of all new cancer cases in the United States.<sup>1</sup>
- Triple-negative breast cancer (TNBC) is an aggressive breast cancer subtype lacking HER2, estrogen and progesterone receptor expression.
- BRCA1 and BRCA2 encode central proteins to many macromolecular complexes that function in DNA repair, cell cycle regulation, and apoptosis.<sup>2</sup>
- BRCA mutations increase susceptibility to breast and ovarian cancers and are overrepresented in TNBC patients.<sup>3</sup> All TNBC patients are recommended to receive genetic counseling and testing for BRCA mutation.<sup>4</sup>
- The goals of our study are to (1) determine whether treatments offered to TNBC patients at LVHN from 2013-14 was in accordance with NCCN Guidelines Version 2.2015 and (2) evaluate the frequency of BRCA mutation among TNBC patients who received genetic testing.

## METHODS

- 69 cases of TNBC seen by LVHN were reviewed. 5 cases were not triple-negative, 1 transferred care and 1 had no follow up: these 7 cases were excluded from our study.
- Charts of 62 TNBC patients were reviewed for information on the patient's age, staging, treatment, and genetic testing, determined from transcriptions including pathology results.
- The National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology for Breast Cancer Version 2.2015 was referenced to compare treatments offered at LVHN with the national standard.<sup>5</sup>

## RESULTS

Staging of Triple Negative Breast Cancer Patients at LVHN from 2013-14

Stage	Number of Cases
0	2
1	23
2	21
3	13
4	3

Table 1. Organization of 62 cases of TNBC seen by Lehigh Valley Health Network from 2013-2014 by staging.

Treatments Received for Triple Negative Breast Cancer at LVHN

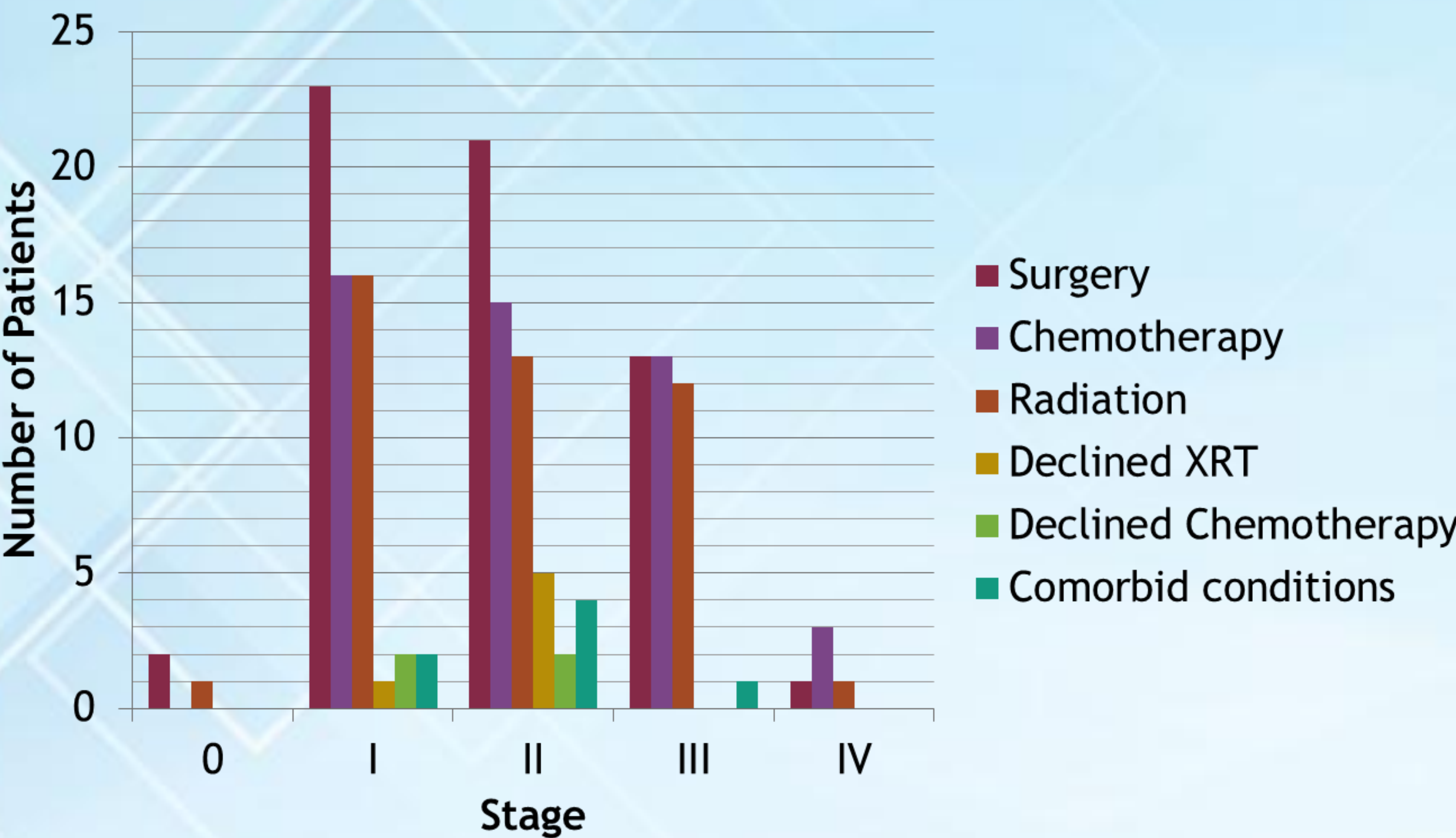


Figure 1. Treatments received by TNBC patients at Lehigh Valley Health Network in 2013-14. Surgery includes either lumpectomy or mastectomy, with surgical axillary staging. Chemotherapy for Stage I patients was given in the adjuvant setting, while chemotherapy for Stage II and III patients was given in either the neoadjuvant or adjuvant setting depending on the tumor size and the timing of the surgery: treatments include combined Adriamycin and Cytosine followed by Taxol, combined Taxol and Cytosine, or weekly Taxol. Chemotherapy for Stage IV patients includes the above drugs as well as Doxil, Ixempra, combined carboplatin and gemcitabine, epirubicin, vinorelbine, Xeloda, or 5-fluorouracil given palliatively. Radiation (XRT) includes brachytherapy or beam radiation given in the adjuvant or palliative setting to the whole breast, axilla, or chest wall. Patients with comorbid conditions were ineligible for chemotherapy and/or radiation.

Frequencies of Genetic Testing and BRCA Mutation Among Triple Negative Breast Cancer Patients at LVHN

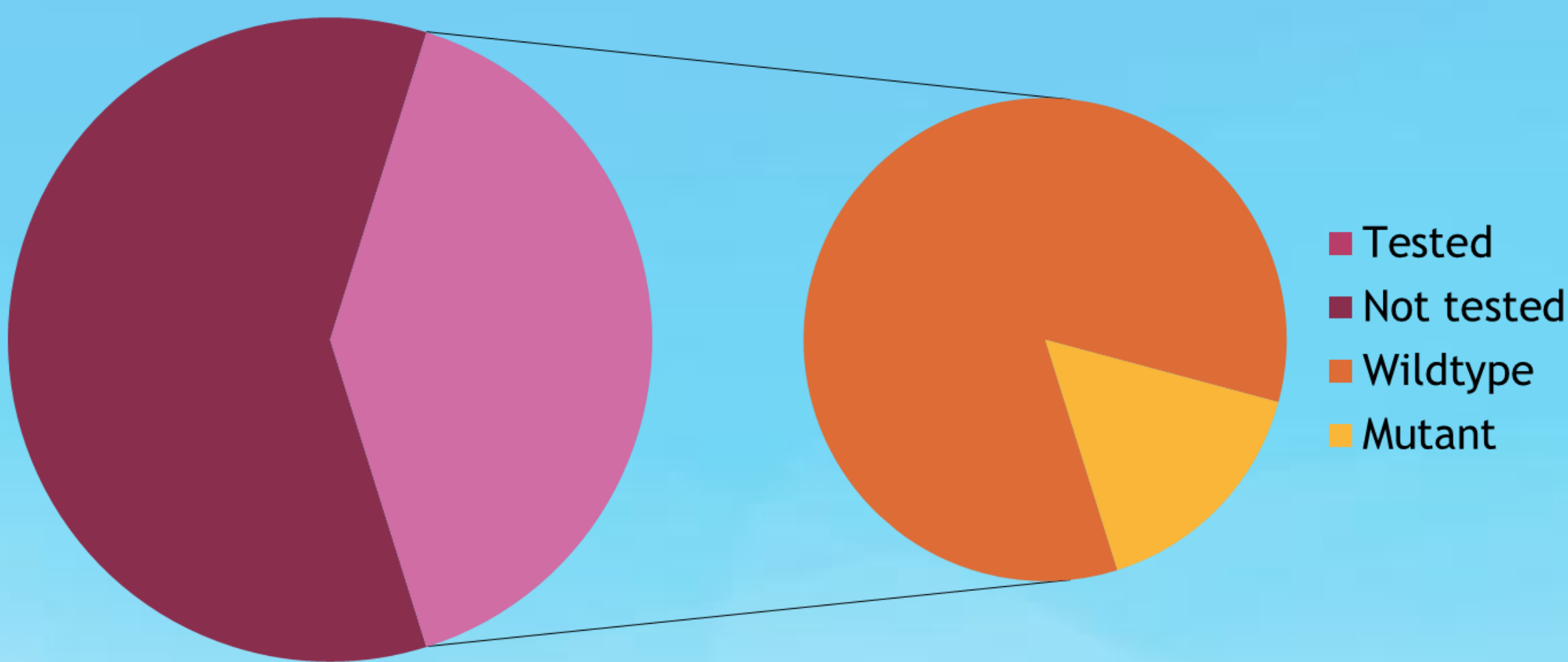


Figure 2. Frequency of genetic testing among 62 TNBC patients seen at Lehigh Valley Health Network in 2013-14 is displayed on the left. Results for the 25 patients who went on to receive testing are displayed on the right.

## CONCLUSIONS

- All treatments for TNBC received/recommended by LVHN from 2013-14 were in accordance with NCCN Guidelines Version 2.2015.<sup>5</sup>
- About 30% of Stage I and II patients did not receive chemotherapy/radiation due to comorbidities or because they declined treatment.
- About 40% of patients underwent genetic testing and 16% tested positive for BRCA1 mutation: this result is consistent with literature suggesting 15-20% of TNBC patients carry a BRCA1 mutation.<sup>3,6</sup>
- The average age of all TNBC patients in our study was 61. The average age of patients with BRCA mutation was 47, which agrees with the literature findings suggesting that BRCA mutation correlates with younger age at TNBC diagnosis.<sup>3</sup>

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